

SORTING GATE

The value of a registered Angus bull

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It is the middle of bull-buying season. Maybe you have purchased your bull already or are heading to a sale

this weekend. Maybe you are already having buyer's remorse thinking you spent too much on your herd bull, or maybe you are looking for a cheaper option. Bull buying, or sire selection, is one of the most important investments cattlemen can make in a year. After all, bulls do account for 50% of the genetics in your herd.

This is not news; cattlemen know the value of a good bull, but recently I had a conversation with a commercial cattleman about raising his own bulls. He explained to me that his plan was to purchase semen from an artificial insemination (AI) stud to breed the replacement heifers he raised, use the same bulls as his bull supplier, then keep the two best males to use in his breeding program to offset cost.

His argument was that he would have far less investment breeding his 40 replacement females AI than investing in another bull

out of the same AI sires from the seedstock producer down the road.

But what would he give up to save the money?

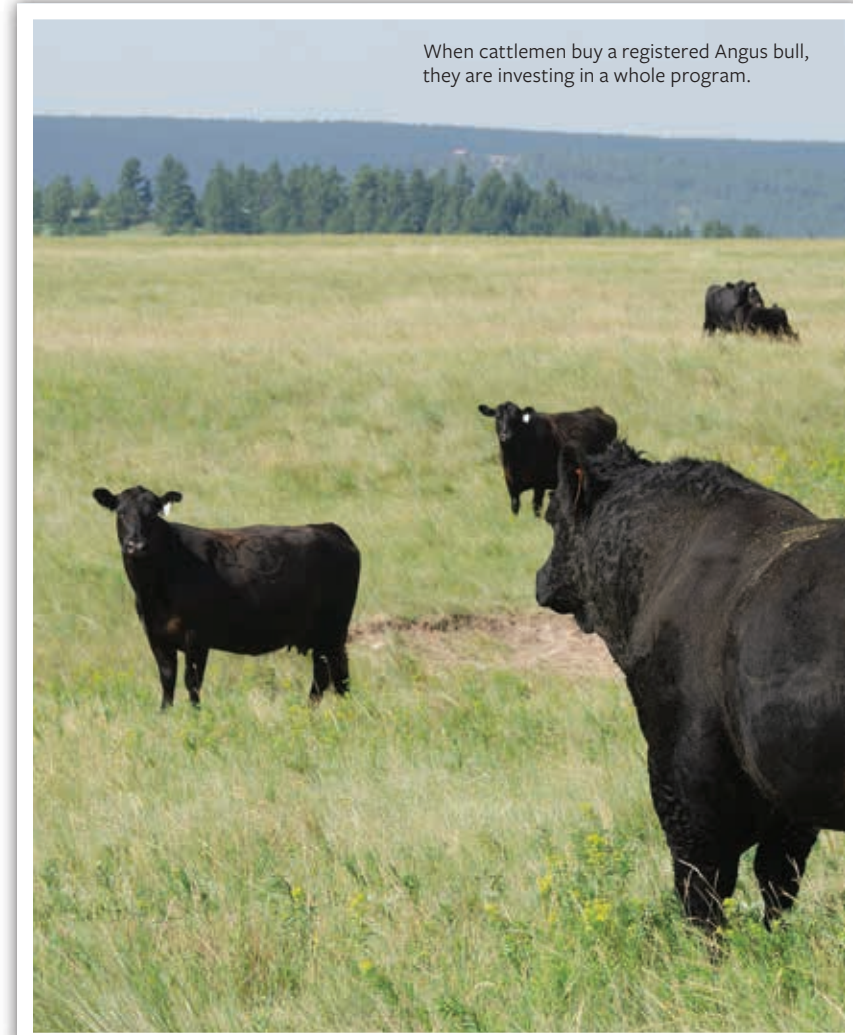
At what cost?

When cattlemen buy a registered Angus bull, they are investing in a whole program. Seedstock producers are readily collecting data on these breeding stock to provide genetics to the cow-calf operator to enhance the value of their herd. Whether it is performance weight information, genomic DNA tests, ultrasound data, scrotal measurements or pregnancy data on the heifers, continuous data collection works to drive genetic change in the next segment of the industry.

When one looks at the big picture, it really comes down to one key equation.

$$\Delta BV/yr = \frac{r_{BV,BV} i \sigma_{BV}}{L}$$

Individuals try to maximize genetic change (BV/yr) by increasing accuracy of selection (r), genetic variation (σ), and selection intensity (i) while



PHOTOS BY SHAUNA HERMEL

decreasing generation interval (L). Tools utilized by seedstock breeders are developed and implemented to drive different parts of this equation.

Selection intensity

One of the largest advantages of going to a reputable seedstock supplier for breeding stock is to increase selection intensity, or how "choosy" cattlemen can be when deciding which bull to bring into the operation.

In the example above, if the producer wants to use an AI-sired bull to breed his own cows, his selection intensity greatly decreases. Why? Because even in a herd of 200 commercial cows, the average producer will probably keep back 40 replacement females or fewer. That

means they will have 40 females to AI in the spring. With an average predicted conception rate of 65%, this producer would settle roughly 26 out of the 40 females by AI.

From there, half of the resulting offspring would be females, meaning this producer will have 13 males to choose from. Another one-third of these individuals will be readily culled after weaning, moving us to a population of eight bulls from which to choose his breeding pieces.

On the contrary, a seedstock supplier of the same size who employs AI on the whole herd with a 65% conception rate would have 130 females bred AI. Half of the resulting progeny would be bulls, and, using the same math, one-third of the AI-sired bull calves would be

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| Property | Value | Max | Min |
|-----------------------------|----------------|----------|--------|
| Calving Ease Direct | -18 to 20 | Max 20 | Min 0 |
| Birth Weight | 6.5 to 7.5 | Max 8 | Min 5 |
| Weaning Weight | 18 to 200 | Max 200 | Min 10 |
| Yearling Weight | 22 to 180 | Max 180 | Min 10 |
| Residual Average Daily Gain | 0.07 to 0.08 | Max 0.08 | Min 0 |
| Dry Matter Intake | -1.81 to 1.88 | Max 1.88 | Min 0 |
| Yearling Height | 43 to 53 | Max 53 | Min 35 |
| Scrotal Circum. | 15.19 to 20.96 | Max 20 | Min 10 |
| Uddery | -22 to 41 | Max 40 | Min 0 |

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culled for various performance reasons. That leaves you, as a commercial cattle producer, with 43 bulls from which to choose, hence increasing your selection intensity, or your ability to be “choosy.”

Accuracy

Now, let’s talk about accuracy, or, in this case, the accuracy of breeding value predictions. While using an AI sire or, better yet, a proven AI sire (sire with EPD accuracies above 0.90) will increase the accuracy of selection in both the seedstock and commercial sectors alike, how does one account for the females?

When seedstock producers enroll their herds in performance data recording, they not only enroll the bulls, but also the females. Every data point collected on females, whether recorded directly on the virgin heifer or accredited to mature females as progeny data points, adds accuracy to her genetic predictions. This increased accuracy means bull suppliers can selectively mate females, increasing the probability of favorable outcomes in the next generation.

Generation interval

Last but certainly not least, consider generation interval. It’s tricky. To be honest, it is not easy to speed up the generation interval in a single-parous species. However, with the advent of genomic technology, it

has become easier for producers to shorten the generation interval.

Using genomics (DNA) testing allows producers to find the genetically superior animals earlier in life. Finding these animals sooner allows producers to multiply them more readily. Perhaps the genetically superior bull gets semen collected sooner to AI females rather than waiting for his first calf crop to come in, or the genetically superior female gets placed in the donor pen for *in vitro* fertilization as a bred heifer to create embryos.

Nonetheless, the value of a registered Angus bull and the program he originates from is endless. The discipline to the breeding goal and the dedication it takes to collect data to predict accurate genetic tools are just a couple of things it takes to provide the commercial industry with the genetics they need. It is not as simple as using the best AI sires and picking the best bull calves that come out. If it were, bulls would be a lot cheaper out in the countryside. ■

Editor’s note: “Sorting Gate” is a regular *Angus Beef Bulletin* column featuring herd improvement topics for commercial producers using Angus genetics. Authored by staff of Angus Genetics Inc. (AGI), regular contributors include Dan Moser, president; Stephen Miller, director of genetic research; and Kelli Retallick, director of genetic service. For additional information on performance programs available through the American Angus Association and AGI, visit www.angus.org and select topics under the “Management” tab.